



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/679,480	10/05/2000	Yasuo Suzuki	197484US0	7558

22850 7590 08/27/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

[REDACTED] EXAMINER

DOTE, JANIS L

[REDACTED] ART UNIT

PAPER NUMBER

1756

DATE MAILED: 08/27/2003

26

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-2-6

Office Action Summary	Application No.	Applicant(s)
	09/679,480	SUZUKI et al
	Examiner J. DOTE	Group Art Unit 1756

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- Responsive to communication(s) filed on 12/31/02; 4/24/03; 6/4/03; 7/3/03.
- This action is **FINAL**.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- Claim(s) 1, 5-7, 10, 11, 15-17, 20, 24-26, 29, 33-35, 38-45 is/are pending in the application.
 Of the above claim(s) _____ is/are withdrawn from consideration.
- Claim(s) _____ is/are allowed.
- Claim(s) 1, 5-7, 10, 11, 15-17, 20, 24-26, 29, 33-35, 38-45 is/are rejected.
- Claim(s) _____ is/are objected to.
- Claim(s) _____ are subject to restriction or election requirement

Application Papers

- The proposed drawing correction, filed on _____ is approved disapproved.
- The drawing(s) filed on _____ is/are objected to by the Examiner
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- All Some* None of the:
- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received
 in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

- Information Disclosure Statement(s), PTO-1449, Paper No(s). 21, 23, 25 Interview Summary, PTO-413
- Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152
- Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

1. The examiner acknowledges the cancellation of claims 3, 4, 13, 14, 22, 23, 31, and 32, the amendments to claims 1, 10, 20, and 29, and the addition of claims 38-45 filed in Paper No. 24 on Jun. 4, 2003. Claims 1, 5-7, 10, 11, 15-17, 20, 24-26, 29, 33-35, and 38-45 are pending.

The examiner notes that the originally filed specification provides antecedent basis for the newly added limitation "an intermediate layer comprising titanium oxide" recited instant claims 1, 10, 20, and 29 at page 31, lines 3-4.

2. The examiner has only considered the copies of the originally filed claims, abstract, and figures, provided by applicants, of the copending US applications listed in the Information Disclosure Statements, filed in Paper Nos. 21, 23, and 25 on Dec. 31, 2002, Apr. 24, 2003, and Jul. 3, 2003, respectively.

3. The rejections under 35 U.S.C. 103(a) of claims 1, 3, 5-7, 10, 11, 13, 15-17, 20, 22, 24-26, 29, 31, and 33-35 over Japanese Patent 09-127711 (JP'711) combined with Japanese Patent 07-295250 (JP'250) and the other cited references, set forth in the office action mailed Dec. 4, 2002, Paper No. 19, paragraphs 6-11, respectively, have been withdrawn in response to the amendments to claims 1, 10, 20, and 29, adding the limitation of now-

canceled claims 4, 14, 23, and 32, respectively. Neither JP'711 nor JP'250 teaches or suggests the asymmetric bisazo pigment represented by formula (II) now recited in instant claims 1, 10, 20, and 29.

The provisional rejections under the judicially created doctrine of obviousness-type double patenting of claims 1, 4-6, 10, 11, 14-16, 20, 23-25, 29, and 32-34 over the pending claims of copending US Application No. 08/550,808 (Application'808) in view of JP'250 and the other cited references, set forth in Paper No. 19, paragraphs 17-20, have been withdrawn in response to the amendments to claims 1, 10, 20, and 29, adding the limitation of now-canceled claims 3, 13, 22, and 31. The claims of the copending application do not recite the weight ratio 1:5 to 5:1 of the phthalocyanine to asymmetric bisazo pigment now recited in instant claims 1, 10, 20, and 29. Nor do the other cited references teach or suggest such a weight ratio. (The examiner notes that a terminal disclaimer to the instant application 09/679,480 has been filed in copending US application 08/550,808.)

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 5, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 8-029998 (JP'998) combined with Japanese Patent 07-295250 (JP'250). See the DERWENT machine-assisted translations of JP'998 and JP'250 for cites.

JP'998 discloses an electrophotographic photoreceptor comprising a conductive substrate, an intermediate layer, a charge generation layer, and a charge transport layer. The charge generation layer comprises 6 parts by weight of a τ-form metal-free phthalocyanine pigment and 6 parts by weight of the asymmetric bisazo pigment (I-24) that meets the limitations of formula (VII) recited in instant claim 38. Translation, Table 1-(6), compound (I)-24, and example 1, paragraph 0035. The weight ratio of phthalocyanine pigment to bisazo pigment is 1:1, which is within the range of 1:5 to 5:1 recited in instant claim 1. JP'998 also discloses that the asymmetric bisazo pigment can equally be the asymmetric bisazo pigment (I-29), which meets the limitations of formula (VIII) recited in instant claim 39. See the translation, Table 1-(7), compound (I)-29, and example 2, paragraph 0036. JP'998 further discloses that the conductive substrate can be an aluminum drum having a diameter of 80 mm. See the translation, examples 8, 9, and 10 in paragraph 0047. JP'998 teaches that intermediate layer may have a layer thickness of "0 to 10 μm." Translation, paragraph 0031.

According to JP'998, its photoreceptor has high spectral sensitivity in the visible light to the near infrared region. Translation, paragraph 0004.

JP'998 does not exemplify a photoreceptor comprising an intermediate layer comprising titanium oxide as recited in the instant claims. However, JP'998 discloses that a fine-powder pigment of a metallic oxide, such as titanium oxide, may be added to the binder resin of its intermediate layer to prevent the occurrence of moire and to reduce the residual electric potential of the photoreceptor. Translation, paragraph 0030. These benefits are the same reasons sought by applicants. See the instant specification, page 31, lines 9-11.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'998, to add the metal pigment titanium oxide to the intermediate layer in the photoreceptor disclosed by JP'998, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that prevents the occurrence of moire and exhibits a reduction in residual electric potential.

JP'998 also does not disclose that the charge transport layer comprises a sulfur-containing compound as recited in the instant claims. However, JP'998 discloses that the charge transport layer can comprise an antioxidant. Translation, paragraph 0027.

JP'250 discloses sulfur-containing compounds that meet the compositional limitations of formulas (III), (S-1), (S-2), and (S-3) recited in the instant claims. JP'250 discloses that said sulfur-containing compounds can be used as antioxidants in charge transport layers of photoreceptors. Translation, paragraph 0007, compounds (I-1) to (I-4) at paragraph 0026, compounds (II-1) to (II-3) at paragraph 0028. JP'250 discloses that said sulfur-containing compounds prevent the deterioration of the photoreceptor due to ozone in the ambient air or due to strong light irradiation. The photoreceptor has improved potential stability over long periods of time. Translation, paragraphs 0003, 0006-0007, and paragraph 0054, lines 1-4. JP'250 further teaches that its sulfur-containing antioxidants provide photoreceptors with improved stability of electrification and sensitivity over long periods of time compared to known hindered phenol antioxidants. DERWENT translation, Table 1, comparative examples 3 and 4, and paragraph 0054, lines 14-18.

It would have been obvious for a person having ordinary skill in the art to use JP'250's sulfur-containing compound that meets the compositional limitation of formulas (III), (S-1), (S-2), or (S-3) recited in the instant claims, as the antioxidant in the charge transport layer in the photoreceptor rendered obvious over the teachings of JP'998, because that person would have had a reasonable expectation of successfully obtaining a

photoreceptor that has improved potential stability over long periods of time and provides stable toner images after many repeated copies.

6. Claims 10, 11, 15, 20, 24, 29, 33, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'998 combined with JP'250, as applied to claims 1, 5, 38, and 39 above, further combined with US 5,047,803 (Kanoto). See the DERWENT machine-assisted translations of JP'998 and JP'250 for cites.

JP'998 combined with JP'250 renders obvious an electrophotographic photoreceptor as described in paragraph 5 above, which is incorporated herein by reference.

JP'998 does not disclose that the electrophotographic photoreceptor can be used in a process cartridge or an apparatus as recited in the instant claims. Nor does JP'998 disclose that its photoreceptor can be used in the imaging forming method recited in the instant claims.

However, the use of process cartridges in electrophotographic apparatuses are well-known in the art. Kanoto discloses that process cartridges in electrophotographic apparatuses are well-known in the art. Kanoto discloses that process cartridges comprising an electrophotographic photoreceptor and at least one processing means, such as a contact roller charger or corona charger, a developing device, a cleaner, and other elements are

widely used in the field of image forming apparatuses that are small and that do not require maintenance. Col. 1, lines 18-28, and col. 3, lines 36-38. Kanoto discloses an imaging forming apparatus comprising a process cartridge that is easily dismounted from the main assembly of the image forming apparatus. Col. 1, lines 60-63. Kanoto shows an example of such an apparatus in Fig. 1. The apparatus comprises a process cartridge 100, a laser beam scanner 7 as the image-wise exposure source, an image transfer roller 8 to transfer the toned image from the photoreceptor to a receiving member, and a pair of fixing rollers 15a and 15b to fix the toned image on the receiving member. The process cartridge 100 comprises a photosensitive drum 1 (i.e., photoreceptor), a charging roller 2, a developing device 3, and a cleaning device 4 to remove residual toner or other contaminants from the photoreceptor after development. See Fig. 1, and col. 2, line 37, to col. 4, line 38. Kanoto discloses that the charging roller 2, the developing device 3, or the cleaning device 4 need not be contained in the process cartridge 100, but can be part of the image forming apparatus. Col. 2, lines 57-60. Kanoto further discloses that the developing device 3 in the process cartridge or image forming apparatus can reverse develop the electrostatic latent image formed on the photoreceptor with a developer having

the same polarity as the charge remaining on the photoreceptor. Col. 3, lines 57-61. Kanoto further discloses that its imaging apparatus performs an image forming process that meets the process steps recited in instant claim 29, but for the step of the providing the particular photoreceptor. Kanoto, col. 3, line 49, to col. 4, line 38.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kanoto, to incorporate the electrophotographic photoreceptor rendered obvious over the combined teachings of JP'998 and JP'250 in Kanoto's detachable process cartridge in its image forming apparatus, because that person would have had reasonable expectation of successfully obtaining a reversal development imaging method and an image forming apparatus comprising an easily detachable process cartridge having the benefits of being small and free from maintenance that provide stable toner images after many repeated runs as disclosed by JP'250.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'998 combined with JP'250, as applied to claim 5 above, further combined with US 4,507,374 (Kakuta) and DERWENT abstract Acc. No. 1983-816039. See the DERWENT machine-assisted translations of JP'998 and JP'250 for cites.

JP'998 combined with JP'250 renders obvious a photoreceptor as described in paragraph 5 above, which is incorporated herein by reference.

As set forth in paragraph 5, supra, JP'998 discloses that the phthalocyanine pigment is a τ -form metal-free phthalocyanine. However, JP'998 does not disclose that the τ -form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims.

Kakuta discloses a τ -form metal-free phthalocyanine pigment having a X-ray diffraction pattern with characteristic Bragg angles ($2\theta \pm 0.2^\circ$) of 7.6, 9.2, 16.8, 17.4, 20.4, and 20.9. Col. 2, lines 16-19, col. 4, lines 38-42, 53-55, and Fig. 4. Kakuta discloses that photoreceptors comprising said phthalocyanine exhibits high sensitivities to longer wavelength light. Col. 1, lines 58-63. Kakuta discloses that said phthalocyanine exhibits a maximum sensitivity at 790-810 nm, and is most useful in photoconductors image-wise exposed to a semiconductor laser. Col. 9, lines 38-41.

Kakuta does not disclose that the X-ray diffraction pattern of its τ -form metal-free phthalocyanine exhibits Bragg angles of 21.7° and 27.6° as recited in the instant claims. However, the instant specification discloses that the τ -form metal-free phthalocyanine having the X-ray diffraction pattern recited in the instant claims can be prepared by a method described in

Japanese Patent 58-182639 (JP'639). Specification, page 21, lines 11-19. Kakuta is the US equivalent of JP'639. See the DERWENT abstract Acc. No. 1983-816039. Because all six Bragg angles disclosed by Kakuta correspond to Bragg angles recited in the instant claims, and because Kakuta's τ-form metal-free phthalocyanine is obtained by a method that makes a τ-form metal-free phthalocyanine having the X-ray diffraction pattern recited in the instant claims, it is reasonable to presume that Kakuta's τ-form metal-free phthalocyanine has a X-ray diffraction pattern that meets the limitation recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art to use Kakuta's τ-form metal-free phthalocyanine pigment as the τ-form metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'998 and JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, and having the benefits disclosed by JP'998 and JP'250.

8. Claim 16, 25, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'998 combined with JP'250 and Kanoto, as applied to claim 15, 24, and 33 above, further combined with

Kakuta and DERWENT abstract Acc. No. 1983-816039. See the DERWENT machine-assisted translations of JP'998 and JP'250 for cites.

JP'998 combined with JP'250 and Kanoto renders obvious an imaging apparatus comprising a process cartridge and an image forming method as described in paragraph 6 above, which is incorporated herein by reference.

JP'998 discloses that the phthalocyanine pigment is a τ -form metal-free phthalocyanine. JP'998 does not disclose that the τ -form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims.

However, Kakuta discloses a τ -form metal-free phthalocyanine pigment that appears to have a X-ray diffraction pattern that meets the limitations recited in the instant claims. The discussion of Kakuta in paragraph 7, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Kakuta's τ -form metal-free phthalocyanine pigment as the τ -form metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'998 and JP'250, and to use the resultant photoreceptor in the apparatus disclosed by Kanoto, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer

wavelength region, thereby providing an electrophotographic image forming apparatus comprising an easily detachable process cartridge and a reversal development imaging method that provide good toner images as taught by JP'250.

9. Applicants' arguments filed in Paper No. 24 with respect to the rejections over JP'998 combined with JP'250 set forth in paragraphs 5-8, supra, have been fully considered but they are not persuasive.

Applicants assert that the evidence in the instant specification shows that the instantly claimed invention is unobviousness over the prior art.

However, the showings in the instant specification are insufficient to overcome the rejections because they do not show that the instantly claimed invention yields unexpected results over the prior art of JP'998 for the following reasons:

(1) The showing in the specification is not commensurate in scope with the instant claims. The instant specification exemplifies preferred photoreceptors comprising: (a) an aluminum drum having a diameter of 30 mm; and (b) an undercoat layer having a thickness of 3.0 μm . See Table 14, instant examples 5-8 and 13-16.

In view of the showing in Rule 132 declaration executed by Yasuo Suzuki on Jul. 4, 2002, filed in Paper No. 14 on Jul. 8,

2002, both the diameter of the photoreceptor drum and the thickness of the undercoat layer appear to be critical elements in the formation of images free from black spots. The declarant attributes the differences in black spot formation between comparative examples 5 and 13 of the instant specification (The instant specification reports that black spots were observed after the 38,000th image. The charge transport layer of comparative examples 5 and 13 do not comprise a sulfur antioxidant as recited in the instant claims.) and examples 8 and 15 of US 6,136,483 (Suzuki'483) (Suzuki'483 reports that no black spots were observed after the 50,000th image. Examples 8 and 15 exemplify photoreceptors that are substantially the same as those in comparative examples 5 and 13, but comprise an aluminum cylinder having a diameter of 80 mm and an intermediate layer comprising titanium oxide having a thickness of 4.5 μm .) to:

- The differences in the thickness in the undercoat layer. The declarant states that "the underlayer layer, which is thicker in the Suzuki Examples (4.5 μm) than in the present Comparative Examples (3.0 μm), has a charge blocking property." The declarant further states that "the thicker the underlayer, the better the black spot formation."

- The differences in the photoreceptor drum diameter. The declarant states that "when Suzuki's photoreceptor (having a

diameter of 80 mm) produces 50,000 images [on A-4 paper], it revolves about 53,742 times," while the "photoreceptor used in the presence application revolves about 143,312 times to produce 50,000 images [on A-4 paper], because it has a diameter of 30 mm." The declarant further states that the "surface of the photoreceptor having a diameter of 30 mm is exposed to hazards by a factor of 2.67 times greater than that of the Suzuki photoreceptor having a diameter of 80 mm." The declarant states that "when black spots are observed after the 38,000th image in the Comparative Examples of the present application, it is nearly equivalent to black spots being observed from about the 100,000th image in the Suzuki Examples."

Thus, both the diameter of the photoreceptor drum and the thickness of the underlayer appear to be critical elements to formation of black spots. The instant claims do not recite these critical elements. Patentability cannot be based on unclaimed limitations.

Given the welter of unconstrained variables, it is not clear whether the "unexpected" result in image black spot formation is due to solely to the addition of the particular sulfur-containing antioxidant, or due to the combination of the sulfur-containing antioxidant with the unclaimed critical elements.

(2) Applicants assert that comparative examples 5-8 and 13-16 are closer than the prior art.

Comparative examples 5-8 and 13-16 use a drum having a diameter of 30 mm. As discussed, supra, the diameter of the drum appears to be a critical element in the formation of images free from black spots. The instant claims merely recite the presence of an "electroconductive substrate." The exemplification of a drum having a diameter of 30 mm is not commensurate in scope with the instant claims. JP'998 exemplifies photoreceptors comprising an aluminum cylinder having a diameter of 80 mm. See the translation, examples 8, 9, and 10 in paragraph 0047. The comparative examples do not exemplify such photoreceptors comprising drums having a diameter of 80 mm. The instant claims do not exclude JP'998's aluminum cylinder having a diameter of 80 mm, as the conductive substrate. Accordingly, the comparative examples in the instant specification are not probative comparisons to JP'998.

The rejections over the combined teachings of JP'998 and JP'250 stand.

10. Claims 1, 5, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 7-128890 (JP'890) combined with JP'250. See the DERWENT machine-assisted translations of JP'890 and JP'250 for cites.

JP'890 discloses an electrophotographic photoreceptor comprising a conductive substrate, an intermediate layer, a

charge generation layer, and a charge transport layer. The charge generation layer comprises 6 parts by weight of a X-form metal-free phthalocyanine pigment and 6 parts by weight of the asymmetric bisazo pigment (I-24) that meets the limitations of formula (VII) recited in instant claim 38. Translation, Table 1-(6), compound (I)-24, and example 1, paragraph 0035. The weight ratio of phthalocyanine pigment to bisazo pigment is 1:1, which is within the range of 1:5 to 5:1 recited in instant claim 1. JP'890 also discloses that the asymmetric bisazo pigment can equally be the asymmetric bisazo pigment (I-29), which meets the limitations of formula (VIII) recited in instant claim 39. See the translation, Table 1-(7), compound (I)-29, and example 2, paragraph 0036. JP'890 further discloses that the conductive substrate can be an aluminum drum having a diameter of 80 mm. See the translation, examples 8, 9, and 10 in paragraph 0047. JP'998 teaches that intermediate layer may have a layer thickness of "0 to 5 μm ." Translation, paragraph 0031. According to JP'890, its photoreceptor has high spectral sensitivity in the visible light to the near infrared region. Translation, paragraph 0004.

JP'890 does not exemplify a photoreceptor comprising an intermediate layer comprising titanium oxide as recited in the instant claims. However, JP'890 discloses that a fine-powder pigment of a metallic oxide, such as titanium oxide, may be added

to the binder resin of its intermediate layer to prevent the occurrence of moire and to reduce the residual electric potential of the photoreceptor. Translation, paragraph 0030. These benefits are the same reasons sought by applicants. See the instant specification, page 31, lines 9-11.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'890, to add the metal pigment titanium oxide to the intermediate layer in the photoreceptor disclosed by JP'890, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that prevents the occurrence of moire and exhibits a reduction in residual electric potential.

JP'890 does not disclose that the charge transport layer comprises a sulfur-containing compound as recited in the instant claims.

JP'250 discloses sulfur-containing compounds that meet the compositional limitations of formulas (III), (S-1), (S-2), and (S-3) recited in the instant claims. JP'250 discloses that said sulfur-containing compounds can be used as antioxidants in charge transport layers of photoreceptors. The discussion of JP'250 in paragraph 5, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'250, to use

JP'250's sulfur-containing compound that meets the compositional limitation of formulas (III), (S-1), (S-2), or (S-3) recited in the instant claims, as an antioxidant in the charge transport layer in the photoreceptor rendered obvious over the teachings of JP'890, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor that has improved potential stability over long periods of time and provides stable toner images after many repeated copies.

11. Claims 10, 11, 15, 20, 24, 29, 33, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'890 combined with JP'250, as applied to claims 1, 5, 38, and 39 above, further combined with Kanoto. See the DERWENT machine-assisted translations of JP'890 and JP'250 for cites.

JP'890 combined with JP'250 renders obvious an electrophotographic photoreceptor as described in paragraph 10 above, which is incorporated herein by reference.

JP'890 does not disclose that the electrophotographic photoreceptor can be used in a process cartridge or an apparatus as recited in the instant claims. Nor does JP'890 disclose that its photoreceptor can be used in the imaging forming method recited in the instant claims.

However, the use of process cartridges in electrophotographic apparatuses are well-known in the art. Kanoto discloses

an imaging forming apparatus comprising a readily detachable process cartridge. The apparatus and process cartridge meet the structural limitations recited in instant claims 10, 11, and 20, but for the particular photoreceptor. Kanoto further discloses that its imaging apparatus performs an image forming process that meets the process steps recited in instant claim 29, but for the step of the providing the particular photoreceptor. The discussion of Kanoto in paragraph 6, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kanoto, to incorporate the electrophotographic photoreceptor rendered obvious over the combined teachings of JP'890 and JP'250 in Kanoto's detachable process cartridge in its image forming apparatus, because that person would have had reasonable expectation of successfully obtaining a reversal development imaging method and an image forming apparatus comprising an easily detachable process cartridge having the benefits of being small and free from maintenance that provide stable toner images after many repeated runs as disclosed by JP'250.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'890 combined with JP'250, as applied to claim 5 above, further combined with US 3,357,989 (Byrne). See

the DERWENT machine-assisted translations of JP'890 and JP'250 for cites.

JP'890 combined with JP'250 renders obvious an electrophotographic photoreceptor as described in paragraph 10 above, which is incorporated herein by reference.

As set forth in paragraph 10, supra, JP'890 discloses that the phthalocyanine pigment is a X-form metal-free phthalocyanine. Translation of JP'890, examples 1 and 2. JP'890 does not disclose that the X-form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claim.

However, a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern recited in the instant claims is well-known in the art, as shown by Byrne. Byrne discloses a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern that meets the limitations recited in the instant claim. See Fig. 1, and col. 2, lines 50-54, col. 5, lines 14-22, and reference claim 1. Byrne's phthalocyanine has photosensitivity to the wavelength region of greater than 700 nm. See Fig. 2. Byrne discloses that his phthalocyanine is especially useful as a photoconductive material in electrophotography, and that it provides "surprisingly high photosensitivity." Col. 2, lines 3-9.

It would have been obvious for a person having ordinary skill in the art to use Byrne's X-form metal-free phthalocyanine

pigment having a X-ray diffraction pattern that meets the limitation of the instant claim as the X-form metal-free phthalocyanine in the photoreceptor rendered obvious over the combined disclosures JP'890 and JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region and having the benefits disclosed by JP'890 and JP'250.

13. Claim 17, 26, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'890 combined with JP'250 and Kanoto, as applied to claim 15, 24, and 33 above, further combined with Byrne. See the DERWENT machine-assisted translations of JP'890 and JP'250 for cites.

JP'890 combined with JP'250 and Kanoto renders obvious an imaging apparatus comprising a process cartridge and an image forming method as described in paragraph 11 above, which is incorporated herein by reference.

As discussed in paragraph 11 above, JP'890 discloses that the phthalocyanine pigment is a X-form metal-free phthalocyanine. JP'890 does not disclose that the X-form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims. However, a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern recited

in the instant claims is well-known in the art, as shown by Byrne. The discussion of Byrne in paragraph 12, supra, are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Byrne's X-form metal-free phthalocyanine pigment as the X-form metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'890 and JP'250, and to use said photoreceptor in the apparatus disclosed by Kanoto, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic image forming apparatus comprising an easily detachable process cartridge and a reversal development imaging method that provide good toner images as taught by JP'250.

14. The examiner has considered the showings in the instant specification with respect to the rejections over JP'890 combined with JP'250 set forth in paragraphs 10-13 above.

However, the evidence in the instant specification is insufficient to overcome the rejections because it does not show that the instantly claimed invention yields unexpected results over the prior art of JP'890 for the following reasons:

(1) The evidence in the specification is not commensurate in scope with the instant claims for the reasons discussed in paragraph 9, item (1), supra, which are incorporated herein by reference.

(2) The evidence does not compare to the closest prior art of JP'890. Comparative examples 9-12 use a drum having a diameter of 30 mm. As discussed, supra, the diameter of the drum appears to be a critical element in the formation of images free from black spots. The instant claims merely recite the presence of an "electroconductive substrate." The exemplification of a drum having a diameter of 30 mm is not commensurate in scope with the instant claims. JP'890 exemplifies photoreceptors comprising an aluminum cylinder having a diameter of 80 mm. See the translation, examples 8, 9, and 10 in paragraph 0047. The comparative examples do not exemplify such photoreceptors comprising drums having a diameter of 80 mm. The instant claims do not exclude JP'890's aluminum cylinder having a diameter of 80 mm, as the conductive substrate. Accordingly, the comparative examples in the instant specification are not probative comparisons to JP'890.

15. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Palestine Jenkins, whose telephone number is (703) 308-3521.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JLD
August 15, 2003

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700